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VIA MESSENGER

August 27, 1991

Elizabeth Murphy, Esq.
United States Environmental
Protection Agency
230 South Dearborn Street
Chicago, Illinois 60604

Re: U.S. v. Selmer, et al.

Dear Liz:

Enclosed is the Statement of Work for the investigation of the Selmer facility submitted to you on behalf of Macmillan, Inc. and North American Philips Corporation. As we discussed last week, the defendants are in the process of jointly selecting a consultant to undertake the investigation. We hope within the next several days to forward the name of our jointly selected consultant to you for EPA's review and approval.

Please let me know if you have any questions or comments.

Sincerely,

Linda

Linda M. Bullen

LMB:gr

Enclosure

cc: Mr. Frank Bentkover
Mr. Michael Steinberg

August 26, 1991

WORK PLAN
FOR INVESTIGATION OF POTENTIAL OCCURRENCE OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER AND SOIL
SELMER PROPERTY
ELKHART, INDIANA

August 26, 1991

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SELMER PROPERTY
ELKHART, INDIANA

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August 26, 1991

WORK PLAN
FOR INVESTIGATION OF POTENTIAL OCCURRENCE OF VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER AND SOIL SELMER PROPERTY ELKHART, INDIANA

INTRODUCTION

The Selmer Company manufactures brass musical instruments in its plant at 500 Industrial Parkway in the Eastside Industrial Park, Elkhart, Indiana. The facility was built in 1965. It is believed that common solvents have been used in the plant for degreasing and cleaning metal parts since operations began, however, little documentary evidence of such use exists. As a result of various governmental and private-party technical investigations, volatile organic compounds have been detected in groundwater in various areas within the City of Elkhart, Indiana. As a result of U.S. Environmental Protection Agency (USEPA) concern about groundwater quality in eastern Elkhart, a 104(e) notice was issued to the Selmer Company in April 1988.

Laboratory chemical analyses for groundwater samples obtained in the eastern Elkhart area have documented the occurrence of several volatile organic compounds, including trichloroethylene (TCE), 1,1,1-trichloroethane (TCA), and dichloromethane (methylene chloride). TCE is the principal volatile organic compound detected in the area and was and is widely used as a degreaser.

OBJECTIVES

The objectives of the work proposed in this plan are to (1) characterize the physiography, geology, and hydrology of the Selmer facility; (2) define the occurrence and magnitude of volatile organic compounds that may be present in soil gas at the Selmer facility; (3) describe the direction and rate of groundwater movement at the Selmer facility; and (4) define the occurrence and magnitude of volatile organic compounds that may be present in groundwater at the Selmer facility. Investigations to meet these objectives are arranged in a phased or stepped approach, where results of an early step would be obtained and analyzed, and may result in modification of a later step.

BACKGROUND

Volatile organic compounds were first detected in groundwater in the eastern Elkhart area in 1976 in samples obtained from residential wells by the USEPA. In 1979, the U.S. Geological Survey (USGS) conducted an evaluation of groundwater resources in the Elkhart area (Imbrigiotta and Martin, 1981). The USGS study included the installation and sampling of 19 groundwater monitor wells in the eastern Elkhart area. Altitude of groundwater was determined from water level measurements made in the wells, and groundwater samples were obtained and analyzed for inorganic constituents and volatile organic compounds.

The USGS study confirmed the presence of TCE, TCA, methylene chloride, trichlorofluoromethane, trichloromethane (chloroform), 1,1-dichloroethane (DCA), methylbenzene (toluene), and 1,2-dichloropropane in groundwater in the northeast part of the eastern Elkhart area. The sources of these compounds could not be identified from the results of the USGS study.

In 1985, Weston Consultants, Inc. (WESTON-SPER, 1986), under contract to the USEPA, conducted extensive groundwater sampling of residential wells

in the eastern Elkhart area. All samples were analyzed for TCE; selected samples were also analyzed for TCA, chloroform, DCA, 1,1- and 1,2-dichloroethylene, and tetrachloroethylene. The Weston study (WESTON-SPER, 1986) documented the occurrence of several volatile organic compounds in groundwater in the eastern Elkhart area, but sources were not identified.

North American Philips Corporation formerly owned The Selmer Company and conducted a soils investigation in 1989 to evaluate the potential occurrence of volatile organic compounds in soils at the Selmer facility. The soils investigation was conducted in response to reports by former and current Selmer employees, during completion of a USEPA 104(e) notice, that vapor phase degreaser still bottoms were disposed on the ground surface behind the Selmer facility between 1970 and 1975. Soil borings were placed at locations identified as potential past disposal areas and in areas downslope from reported potential past disposal areas. Laboratory chemical analyses for volatile organic compounds indicated concentrations of TCE in shallow soil samples of less than 11 milligrams per kilogram. TCE concentrations in soils at the Selmer facility decreased with increasing depth of sample collection.

FACILITY DESCRIPTION

The Selmer facility includes about 17 acres in an area of industrial activity in eastern Elkhart, Indiana. The eastern Elkhart area is on a flat plain that lies between the St. Joseph River on the north and the Elkhart River on the south and west. The area has little topographic relief; local runoff drains to a topographic depression east of the Selmer facility. At times of large surface runoff, the depression is swampy in appearance. Adjoining property consists entirely of industrial facilities.

PLANT HISTORY AND SOLVENT USE

The original manufacturing plant at the Selmer facility was constructed in 1965 by C.G. Conn. From June 1970 to 1989, the property was owned by The Selmer Company, formerly a wholly-owned subsidiary, and later a division of North American Philips Corporation. In 1989, North American Philips Corporation sold The Selmer Company (and property) to Integrated Resources. The plant has been used exclusively for the manufacture of band instruments.

Solvents are used during the manufacture of band instruments to degrease parts between plating operations. Degreasing operations at the Selmer facility occurred chiefly in vapor phase degreasers (VPD's). VPD's are usually connected to a solvent still to reclaim the used solvent for reuse in the degreaser. Two to five VPD's and one to three solvent stills have been in use at the Selmer facility from 1970 to present. TCE and lesser amounts of TCA were the principal solvents used in the VPD's at the Selmer facility.

The solvent stills on the VPD's generate sludge, commonly referred to as "still bottoms", which must be removed periodically from the stills. At the Selmer facility, the still bottoms consist chiefly of vegetable based oils, such as lard, buffing compound, and up to five percent by weight TCE or TCA.

HYDROGEOLOGIC SETTING

GEOLOGY

The Selmer facility is underlain by glacial outwash deposits that are about 110 feet thick. Figure 1 is a generalized geologic section through the Selmer facility and is based on data from Imbrigiotta and Martin (1981). The glacial outwash deposits are chiefly sand and gravel, but include interbedded fine-grained silt and clay (Figure 1). These unconsolidated sediments overlie bedrock, which consists of shales of Devonian and Mississippian age.

Data from geologic logs of soil borings drilled on the Selmer facility indicate that the upper 40 to 50 feet of subsurface material consists of sand and gravel with a few interbeds of silty clay up to two feet thick. The material below 40 to 50 feet consists of sandy to silty clay.

HYDROLOGY

The unconsolidated glacial outwash deposits comprise the principal aquifers. Groundwater occurs under unconfined conditions in the shallow aquifer underlying the eastern Elkhart area. The presence of an extensive fine-grained silt and clay layer, ranging from 35 to 50 feet thick, underlying the shallow deposits results in partial confinement of the deep part of the aquifer, which generally occurs about 85 feet below land surface. Groundwater moves from the east toward the west through the area. The vertical hydraulic gradient is upward and leakage may occur from the deep confined aquifer to the shallow unconfined aquifer. Depth to groundwater is about 20 feet below land surface on the Selmer property; no wells exist on the property at this time.

FIELD INVESTIGATION

[redacted]

Initial field investigations ~~will include~~ the following steps: (1) a soil gas investigation; (2) installation of groundwater monitor wells; (3) measurement of groundwater levels; and (4) collection of groundwater samples for laboratory chemical analyses. If analysis of hydrogeologic data resulting from the initial steps of the field investigation indicates that the Selmer facility is a possible source of groundwater contamination, an appropriate soil sampling plan will be developed for the Selmer facility.

SOIL GAS INVESTIGATION

A soil gas investigation is suggested as the first step under this work plan for the Selmer facility. Recommended spacing for obtaining soil gas samples would be a 100-foot grid excluding land occupied by buildings. Based on evaluation of data obtained, it may be desirable to collect additional soil gas samples for selected areas using a closer spacing. Soil gas sample results will be provided and discussed with EPA, and will be considered in determination of the location of groundwater monitor wells.

[redacted]

INSTALLATION OF MONITOR WELLS

Proposed tasks for installation of monitor wells include preparation of technical specifications, supervision of well construction and development, groundwater sample collection and analysis, and preparation of a data report. All appropriate permits required by State and local regulatory agencies will be obtained prior to construction of wells. A site health and safety plan will be developed if required.

[redacted]

[redacted]

Eight monitor wells are presently recommended to be installed on the Selmer facility site. Tentative locations are shown on Figure 2. Monitor well S-A is proposed near the north property line. Monitor wells S-B and S-D are proposed on the upgradient side of the property near the east property line. Monitor well S-C is proposed near the center of the property downgradient from the swampy area, which is on the east or upgradient property boundary. Monitor well S-E is proposed near the south property line, which is contiguous with another industrial property that is considered to be a potential source area. Downgradient monitor wells S-F, S-G, and S-H are proposed along the west property line. The south-most of these three monitor wells (S-F) is at a site adjacent to another potential off-site source area. The recommended number and locations of monitor wells are sufficient to determine the direction of groundwater movement and to evaluate the presence, extent, and possible sources of groundwater contamination that may exist at the Selmer facility.

Technical specifications and contract documents for construction of the proposed monitor wells will be prepared. Hydrogeologists from State and Federal agencies familiar with local geologic and hydrologic conditions will be consulted regarding the most effective method for drilling at the site. After technical specifications are complete, negotiations with drilling contractors will begin, and drilling method and contractor will be selected.

Monitor wells will be drilled using hollow-stem auger technique, if appropriate. A split-spoon sampler will be used to obtain soil samples at five-foot intervals for geologic characterization. Soil samples for the interval from land surface to water level will be screened for relative volatile chemical content using a portable vapor analyzer, such as an HNu photoionization detector or an Organic Vapor Analyzer. Field readings of relative volatile chemical content will be recorded on the geologic logs. If analytical results indicate the presence of elevated levels of volatile organic compounds in soil samples in a particular area, a plan for a more detailed soil gas investigation of that area will be developed.

[redacted]

and transported to the analytical laboratory using approved Chain-of-Custody protocol. One field blank, one trip blank, and one duplicate sample will be prepared and analyzed for each day of sample collection. One equipment blank will be prepared and analyzed for each full sampling round. Strict equipment decontamination procedures will be followed to avoid cross-contamination of samples.

Water samples will be analyzed for volatile organic compounds using USEPA Method 601/602 for purgeable halocarbons and purgeable aromatics. Routine constituents will be analyzed using appropriate USEPA methods. During sample collection, field measurements will be made of temperature, pH, and specific electrical conductance for each water sample obtained. Sampling and analyses should be repeated after one month using identical sampling and analytical methodology with rigorous quality assurance/quality control, identical sampling personnel, and the same analytical laboratory.

[redacted]

Monitor well completion will be consistent with USGS wells previously installed in the area. All wells will be drilled to a depth of ~~about 40~~ feet, to fully penetrate the shallow unconfined aquifer and bottom in the fine-grained confining beds. The lower 20 feet of casing will consist of well screen or slotted pipe surrounded with an appropriate sand- or gravel-pack. Surface casing will be installed in compliance with State requirements and grouted in place to form an effective surface seal. The monitor wells will be protected by locking surface shelters.

On-site supervision for well construction and development operations is required to assure all specifications are met. During well construction, an on-site hydrogeologist will prepare lithologic descriptions of drill cuttings samples, prepare schematic diagrams of well construction, and supervise drilling, casing, and well development operations.

MONITORING OF GROUNDWATER LEVELS

Following construction and installation of locking surface shelters, all monitor well sites will be surveyed for location and altitude. Altitude of measuring points for depth to groundwater level measurements will be determined to the nearest one-hundredth of one foot. Upon completion of well installation, measurements of groundwater level will be obtained at all monitor wells. Water levels for all wells will be measured on the same day.

COLLECTION AND CHEMICAL ANALYSIS OF GROUNDWATER SAMPLES

After construction is complete, groundwater samples for laboratory chemical analyses will be obtained from all monitor wells. In addition, a surface-water sample will be obtained from the swampy area near the east property boundary. Sample collection and preservation procedures will follow standard protocol as recommended by the USEPA. All samples will be collected

POTENTIAL FUTURE ACTION

If results from the groundwater monitoring program indicate that the Selmer facility is a possible source of volatile organic compounds in groundwater, then, as appropriate, an additional soil gas investigation will be conducted for the suspected source area and/or a soils investigation will be planned. If results from the laboratory chemical analysis program indicate that the Selmer facility is not a source of volatile organic compounds in groundwater, no additional investigation will be conducted.

If further soils investigation is undertaken, the objective will be to document the nature and extent of volatile organic compounds in the soils. The soils investigation may involve several stages, with each stage dictated by results of the preceding stages. The first stage would consist of an additional soil gas investigation in the suspected source area. The second stage would consist of soil borings placed at the location where volatile organic compounds were detected in soil gases. The soil borings and chemical analyses of soil samples would be used to delineate the areal extent of elevated concentrations of volatile organic compounds in the soil. A possible third stage would include installation of additional groundwater monitor wells in areas of documented presence of volatile organic compounds in soil.

REFERENCES

Imbrigiotta, T.E., and Martin, Angel, Jr., 1981. Hydrologic and chemical evaluation of the ground-water resources of northwest Elkhart County, Indiana. U.S. Geological Survey: Water-Resources Investigation 81-53, 140 p.

WESTON-SPER, Technical Assistance Team, 1986. Regional ground water investigation of volatile organic contamination in Elkhart, Indiana. Technical report for U.S. Environmental Protection Agency, Region V, Contract No. 68-95-0017.

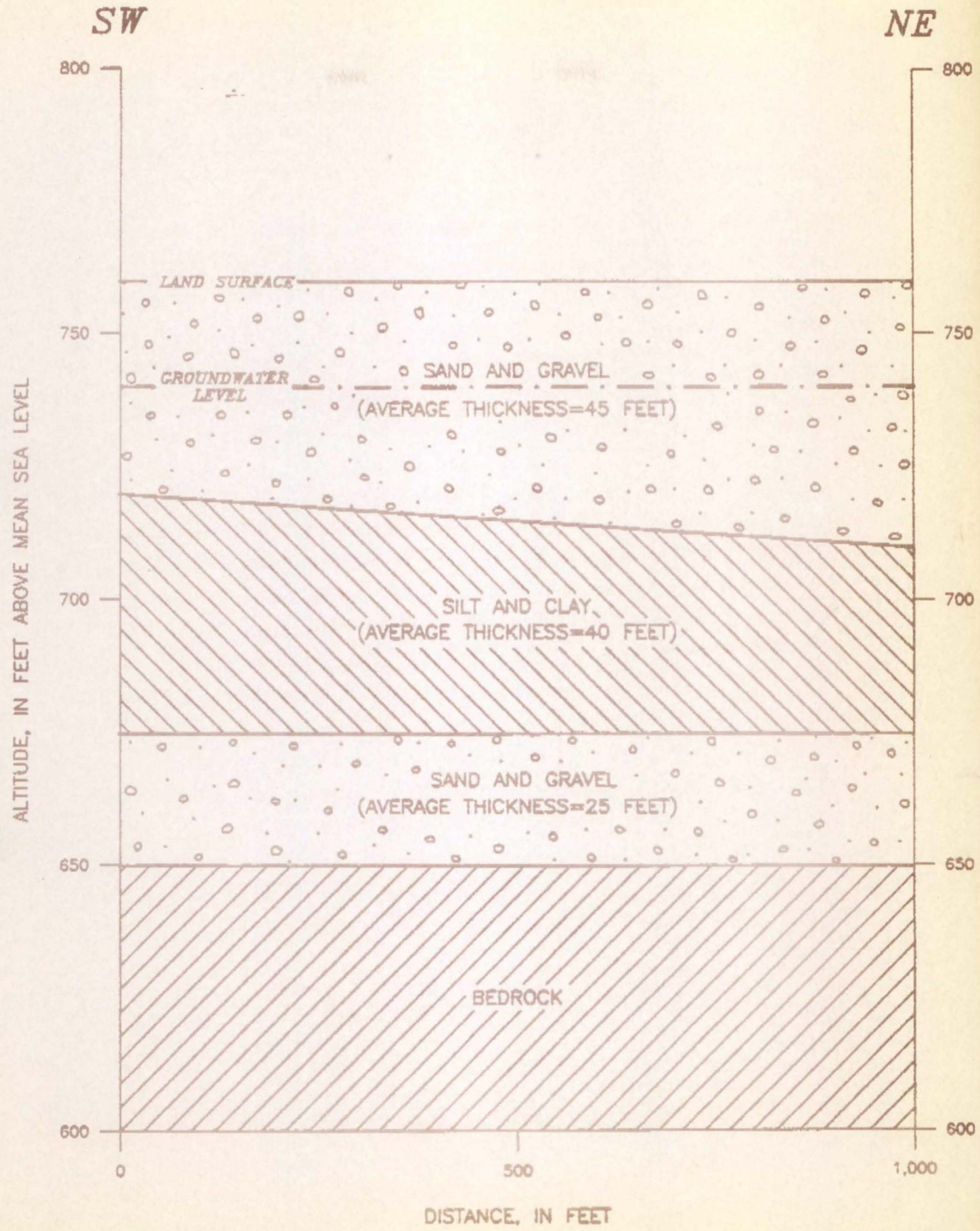

FIGURE 1. GENERALIZED GEOLOGIC SECTION THROUGH SELMER FACILITY AREA.

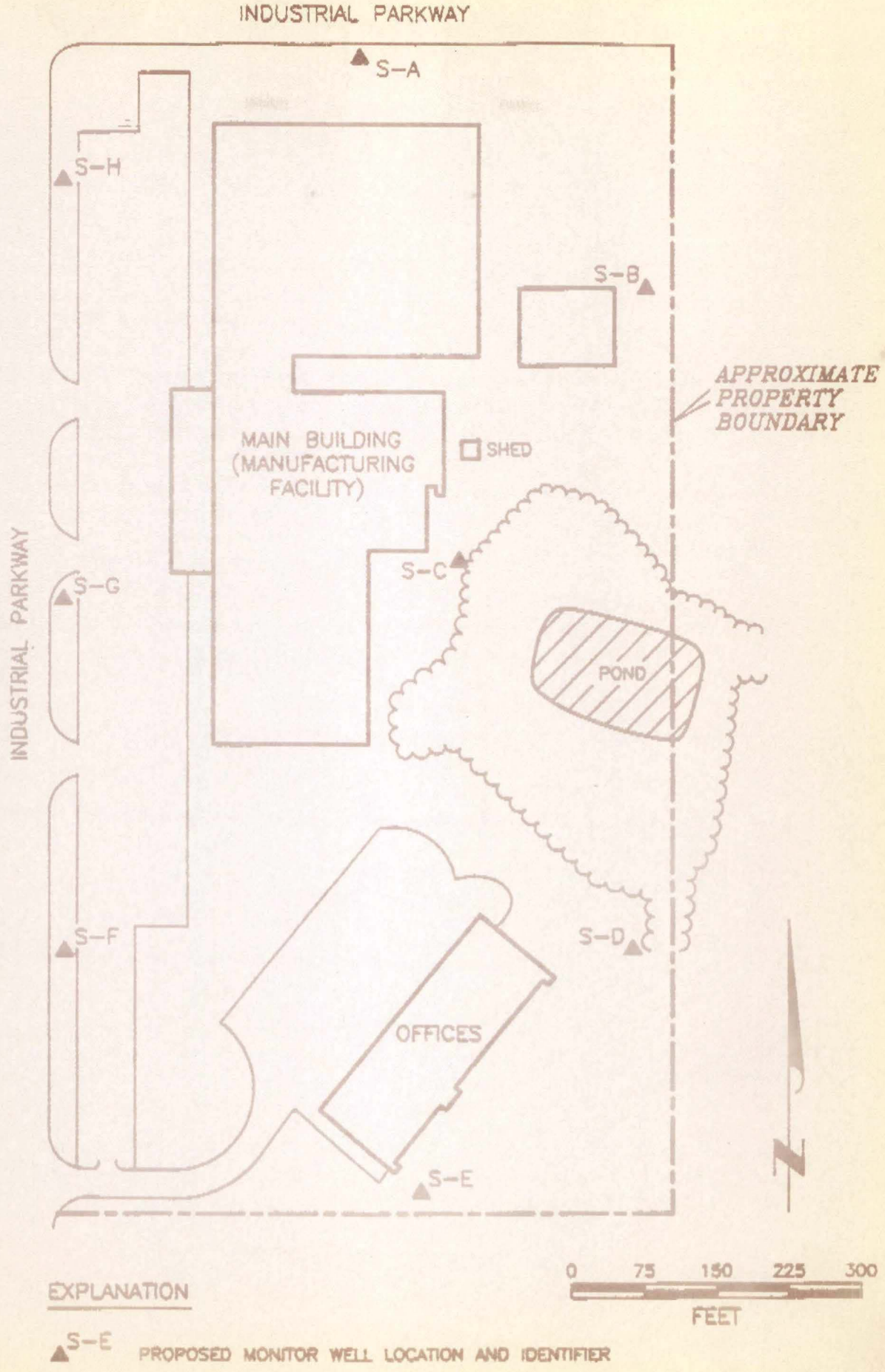

FIGURE 2. PROPOSED MONITOR WELL LOCATIONS, SELMER PROPERTY, ELKHART, INDIANA